import matplotlib.pyplot as plt

import pandas as pd

import seaborn as sns

import matplotlib.cm as cm

import numpy as np

df = pd.read\_csv(r'..\result\Lr\_new.csv')

# 这两行代码解决 plt 中文显示的问题

plt.rcParams['font.sans-serif'] = ['SimHei']

plt.rcParams['axes.unicode\_minus'] = False

#折线图

data1 = pd.DataFrame()

first\_quarter\_data = df[(df['Accper'] >= '2018-01-01') & (df['Accper'] <= '2018-03-31')]

mean\_profit = first\_quarter\_data.groupby('Indnme')['利润率'].mean()

data1['2018年第一季度'] = mean\_profit

data = df[df['Accper'].str.startswith('2018-06')]

data1['2018年第二季度'] = data.groupby('Indnme')['利润率'].mean()

data = df[df['Accper'].str.startswith('2018-09')]

data1['2018年第三季度'] = data.groupby('Indnme')['利润率'].mean()

data = df[df['Accper'].str.startswith('2018-12')]

data1['2018年第四季度'] = data.groupby('Indnme')['利润率'].mean()

first\_quarter\_data = df[(df['Accper'] >= '2019-01-01') & (df['Accper'] <= '2019-03-31')]

mean\_profit = first\_quarter\_data.groupby('Indnme')['利润率'].mean()

data1['2019年第一季度'] = mean\_profit

data = df[df['Accper'].str.startswith('2019-06')]

data1['2019年第二季度'] = data.groupby('Indnme')['利润率'].mean()

data = df[df['Accper'].str.startswith('2019-09')]

data1['2019年第三季度'] = data.groupby('Indnme')['利润率'].mean()

data1 = data1.T

# 绘制折线图

plt.figure(figsize=(12, 10))

for column in data1.columns:

    plt.plot(data1.index, data1[column], marker='o', label=column)

plt.xlabel('季度')

plt.ylabel('利润率均值')

plt.legend()

plt.xticks(rotation=45)  # 旋转X轴标签，以便更好地显示季度标签

plt.grid()

# 显示图形

plt.show()

#柱状图

# 过滤2019年9月的数据

df = df[df['Accper'].str.startswith('2019-09')]

# 计算每个行业大类的利润总额均值

mean\_profit = df.groupby('Indnme')['利润率'].mean()

# 对利润总额进行从低到高的排序

mean\_profit = mean\_profit.sort\_values(ascending=False)

# 创建颜色映射，使其与条形图的长度相匹配

colors = cm.Blues(np.linspace(0.1, 1, len(mean\_profit)))[::-1]

# 创建一个新的图形

fig, ax = plt.subplots(figsize=(10, 6))

# 使用上面创建的颜色映射设置颜色

bars = ax.bar(mean\_profit.index, mean\_profit.values, color=colors)

# 增加颜色条

cbar = fig.colorbar(cm.ScalarMappable(cmap=cm.Blues), ax=ax)

cbar.set\_label('利润总额均值')

# 设置轴标签和图形标题

plt.xlabel('行业大类')

plt.ylabel('利润总额均值')

# 显示图形

plt.show()